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JEWISH LAW

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SANITARY SCIENCE

BY

J. SNOWMAN, M.R.C.S., L.R.C.P.

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JEWISH LAW AND SANITARY SCIENCE.

By J. SNOWMAN, M.R.C.S., L.R.C.P. Lond.

I.

OF all branches of medicine that of hygiene or sanitary science is acknowledged to be the most important. The future of medicine from the utilitarian standpoint is bound up with the welfare of this single branch. It is in this direction the permanent advances of the healing art are to be sought, and we look to it to speed the time when medicine will cease its existence as a curative art and enter upon its new career as the art of preventing disease. It is only within recent years that the necessity has arisen to assign to hygiene a separate place among the sciences. The odds and ends of sanitary science were previously appropriated by medicine in general, not yet having attained sufficient eminence to warrant special recognition. Its objects are in one sense antagonistic to medicine, because it aims at creating a state of affairs which will be able to dispense with that craft. It sets itself the task of warding off disease and resisting its attacks. It will have reached its acme of perfection when it enunciates the natural laws of hygiene which will render impregnable to disease those that follow their behests. And so much disease can be traced to causes which human foresight could reasonably annul that there is no doubt that this young science will not attain any considerable age before many of its aspirations are

realised. Sanitarians will tell you that they have to compete with the callousness and listlessness of the general public ; that the hygienic principles already defined do not meet with the response they merit from those to whom they appeal. This is not a reproach which ought to be levelled with truth against a Jewish public. The Jewish religion does not cease with the temple or the synagogue, with the Sabbath or the holyday ; it follows its adherents in the privacy of the home during the week by day and by night. It does not content itself by dictating articles of belief and principles of faith, but prescribes for the eating of food, the wearing of clothes and the building of houses. It is a religion which holds forth immunity from disease as one of the rewards of a faithful adherence to its tenets, a religion which represents God as the physician of His people, whose laws are life giving in a physical as well as a spiritual sense. The religion which places life on so high a pedestal as Judaism does is surely within its bounds in giving practical force to that doctrine by including sanitary laws in its system. There is some difficulty, however, in determining which are sanitary and which are ceremonial. The great group of laws dealing with legal uncleanness certainly point to a sanitary explanation ; but it is almost impossible to extricate them from the pale of ceremonialism. On the other hand the dietary laws which at the first blush appear entirely ceremonial in character lend themselves easily to a sanitary explanation. The fact is that no clear line of demarcation divides the legal law from moral law, religious law from state law, the care of the soul from the care of the body, spiritual cleanliness from bodily cleanliness.

To study this subject to the best advantage we must recognise that sanitary laws pure and simple do not, as a rule, exist in the Bible—there are one or two certainly to which severe tests may be applied, and which will come forth from the ordeal unscathed. Still the Mosaic dispensation does

deal extensively with laws calculated to preserve the national health.

Various opinions have been expressed as to the object of the Mosaic system of cleanliness with its peculiar care for the life of man, its propagation, birth, death and subsequent decay. Some have considered that the matters pronounced unclean were natural objects of aversion to the people, that they were the types of uncleanness at which human nature then revolted, and therefore they formed a necessary field for legislation. An idea, to which Maimonides and several other philosophers adhered, tended to see in them arbitrary regulations with the definite aim of educating a newly born people to virtues of a high order, and especially alienating them from the contaminating example of surrounding nations. Others maintain that in addition to this end they served the immediate purposes of health, while others would divorce them entirely from religious significance, apart from the maxim of *mens sana in corpore sano*. The great difficulty in accepting the last view is that if the laws be weighed in the scales of sanitary science they will be found wanting. It cannot be too strongly insisted that there was no anticipation of subsequent discoveries in hygiene, and the value of the quasi-sanitary laws of the Pentateuch must not be gauged from modern standpoints. Though the general Mosaic system was certainly directed to attain by a moral revolution a degree of religious excellence not otherwise to be arrived at, the confines of that unique movement were limited to religion, it did not encroach upon other domains of human intelligence. Several of the rites of cleanliness seem to be in our present state of knowledge more properly attributed to feelings of natural repugnance than to the dictates of sanitary science. This is well borne out by the ceremonial uncleanness which followed contact with the dead. Speaking from the sanitary point of view the stress laid upon it is out of all proportion to danger of infection or contagion. The relation between the religious

and scientific is at best indefinite. But there is at least one section of legislation which claims consideration as primarily instituted for the preservation of public health. The laws relating to leprosy were imperative for economical reasons. It was common in Egypt and clung to the Israelites during the whole period of their settlement in Palestine, a disease which still holds considerable sway in the East.

The chapters in Leviticus possess in addition to their intrinsic value the scientific interest of being remarkably early examples of the diagnosis and treatment of disease. The thirteenth chapter of Leviticus is quoted as a masterly piece of differential diagnosis, and the precautions to prevent infection remain to this day in principle unimproved. If the skin disease referred to were spreading, if it were excavated below the level of the skin, if it showed a raw ulcer on an old scar, or if the hair on it became white or yellow and downy, or if there were ulceration of a bald head, the patient was shut up for a time for observation, and if the malady spread he was pronounced leprous and unclean and shut out from the camp. Now is the disease identical with what we now understand by the term leprosy, the most destructive of all diseases? Is the **תַּרְעָנָה** leprosy of Leviticus the same disease traceable throughout the Bible and the later Hebrew literature? the victim of which the Talmud regards as already dead, and into whose family we are warned against intermarrying. True leprosy runs a fairly definite course, beginning with a trifling sore that declines to heal, but spreads eventually over the whole limb it has attacked. The limb swells, the skin becomes hard and presents brown patches. To these there succeed scarlike spots, but the skin is not broken; the nerves swell, pain follows and a fatty perspiration bathes the body. Or the disease begins with a couple of white spots devoid of all sensation, but gradually extending till horrid but painless ulcers are eaten into the flesh of the extremities. The surface is cold, the fingers and toes look glazed. In the advanced

stage, joint after joint is exposed and opened, bone after bone drops away, leaving limbs fearfully distorted and quite useless.

It may be stated at the outset that some philological confusion exists on the subject. The word leprosy originally signified any disease of the skin. Now-a-days it is applied only to a specific disease of the constitution which generally has certain manifestations on the skin.

Etymologically the leprosy of the Bible means nothing more definite than skin disease. A study of the details of the Biblical disease shows distinctly that it is not the malady to which the term leprosy is now applied. There is not sufficient evidence to warrant us in absolutely identifying any of the descriptions afforded by the text. The descriptions certainly embody several varieties of disease, some are fairly comparable to recognised forms; they seem to range over a large field, including the conditions known to-day as psoriasis, impetigo, leucoderma, local ulcers and perhaps the rashes of contagious fevers. It is difficult to identify to-day carefully described diseases observed fifty years ago; little wonder then that the brief and fragmentary verses of the time-honoured Bible fail to furnish us with sufficient data for the purpose. Curiously enough there is hardly any unequivocal reference in the whole Bible to true leprosy. There can be little doubt that the disease existed during the whole period of the Hebrew occupation of Palestine, there can be equally little doubt that it was often mistaken for and confused with other conditions. "When in the sixteenth century an inspection was undertaken in France and Italy of the over-crowded leper hospitals the fact came out that in many of them by far the greater number and in some instances the whole of the inmates were found to be suffering merely from various skin diseases, and only a minority from true leprosy." (*Diseases of the Bible*, by Bennot). We may therefore well believe that the sanitary duties of the priests in Palestine

did not always result in isolating the true cases of leprosy or distinguishing between it and other forms of disease. In so far as they followed out the directions given in Leviticus they were performing a religious ceremonial which undoubtedly reflected beneficially on the national health; but they were not engaged in a scientific campaign against disease. In our comparative ignorance of the true nature of the affections treated of in Leviticus it is useless to speculate on the question of their contagiousness. But it will be seen that any value these laws possess as sanitary precautions turns upon this single point; for if those diseases did not spread by infection the entire system enforced becomes divorced from sanitary associations and resolves itself into a purely religious rite. The Jew who was ceremonially unclean was not by any means the victim of an infectious disease. The highest grade of uncleanness was attained by contact with a dead body or any article which had been defiled by one. There were three grades of uncleanness and the leper was classed in the second.

When we investigate some of the Rabbinical elaborations of the laws of leprosy we begin to realise the great attention they devoted to the subject. They would not examine a case at dawn of day, at twilight or at noon, because the conditions of light are not then favourable. The patient was brought out to clear daylight and we are told of the attitudes and postures he was asked to assume so as to bring a complete and comprehensive view of his disease before the observer. The priest was required to possess a good vision, but the priestly qualifications seem to have deteriorated sadly, because in later times the diseased were examined by skilful specialists who directed the priests to make a formal pronouncement of clean or unclean. Action was taken on the lines laid down in the Pentateuch in accordance with the verdict thus pronounced. Did the Rabbis regard the disease as contagious and isolation as a measure of hygiene? Their own statements afford the

clearest answer to this question. After discussing the varieties of eruption mentioned in the section on leprosy, they state all are rendered unclean by those plagues except non-Jews and foreigners. If two sores appeared simultaneously on the same person they might not be both examined on the same occasion. If a bridegroom became subject to the disease on the day of his marriage he was excused from submitting himself for examination for one week. Likewise the occurrence of a festival warranted the delay of the priestly inspection until its close. If we might reckon without these and similar awkward statements we could build up a very complete Rabbinical system of isolation in respect to leprosy. An infected person entering any dwelling-house renders all the contents of the same infected, even the beams in the ceiling. In the synagogue the lepers were separated from the congregation by a partition 10 spans high and 4 cubits wide. They were required to enter the synagogue before the arrival of the congregation, and to leave before the departure of the congregation.

If we are doubtful regarding the nature of the diseases of the Bible we include under the term leprosy, we are perfectly ignorant of the nature of what is described as the leprosy of the house and garment. The general explanation refers it to the growth of fungi, mosses or other parasitic organisms, which frequently develop in damp localities as coloured patches on the walls. A French physician, M. Noel Gueneau, determined to test whether dwelling in houses so affected was injurious to health. He experimented on a dog by permeating the air which he breathed with powder obtained by scraping such diseased walls. The experiment produced no result.

It is quite clear therefore that apart from preconceived or prejudiced notions the laws of leprosy bear no constant relation to the laws of health. We may now examine some of the Mosaic restrictions as to the food, and the corollaries subsequently supplied to them. There are many works which

afford us most rational explanations of the dietary laws of the Bible, and associate them all with laws of health. It may be observed that these interpretations vary very widely. But they agree in finding the Biblical laws well up to the latest information on hygienic subjects known at the time these interpretations were written. For instance, according to the Jewish laws poultry unlike cattle do not require *post-mortem* inspection to ascertain the condition of the internal organs, although both classes of animals are apparently liable to the same disease, namely, tuberculosis. Experimental research has however shown that while the tuberculosis of cattle is an inoculable disease the tuberculosis of fowls is not inoculable, and this more or less crude result of laboratory work has been put forward as an explanation of the difference in the law just referred to. While admitting the ingenuity of the suggestion, it must be accepted with great reserve. Research has shown that of all meats the meat of pigs yields on cooking the greatest amount of gelatine; and gelatine is undoubtedly one of the best soils for the growth of morbific bacilli the germs of so many diseases. It might with equal plausibility be argued that in the association of these two facts is to be found the reason for the prohibition of the meat of the pig. So the latest scientific researches may be enlisted in the meritorious work of demonstrating the value of the Jewish dietary laws; the value attaching to these explanations is in inverse proportion to their ingenuity. It is now very generally stated that these laws prohibit the use of meat tainted by disease. And to a very great extent this is true. Within recent years a quantity of evidence has been accumulating which shows the possibility of human beings becoming infected with the germs of consumption by eating the meat of cattle suffering from pearl disease. The tubercular masses characteristic of the disease are carefully removed by the unscrupulous butcher, who is thus able to palm off meat unfit for human consumption on unsuspecting customers. The nature of this pearl disease

is somewhat doubtful. The consensus of opinion inclines to the idea that it is identical with consumption or tuberculosis in man. Then follows the suggestion that the use of the flesh or milk of such animals carries with it the risk of contracting consumption. Professor Chauveau, one of the first investigators of the subject, did not consider the flesh itself as virulent, except when it contained tuberculous lymphatic glands; nor the blood, although it might rarely contain tubercular elements. Cooking if thorough will completely destroy the poison. Virchow, however, as the result of four years' investigation, found so little evidence of injurious results from eating simply the flesh of such animals, provided that there are no pearl nodules in it, that he did not feel justified in advising the Government to prohibit the sale of such flesh after all the nodules had been carefully removed. It is practically admitted on all sides that the ingestion of tubercular matter can produce tubercle; but all except strong partisans will allow that it has not yet been shown that eating the meat of tubercular animals is attended with like danger. Experiments, both designed and accidental, on calves, pigs, and hens show that they have died from tuberculosis after feeding on the milk of tubercular animals, and altogether there is more reason to fear infection from tubercular milk than from tubercular meat. Dr. Sims Woodhead details a system of inspection carried out by a Milk Supply Association in Denmark to determine whether the cows are in a healthy condition. In the most important respects it resolves itself into discovering by physical examination such constitutional defects as would cause that animal to be pronounced *trifa* by the Shochet if found *post mortem*. And the Jewish law does also specially take cognisance of the condition of the milk used for food (*Joreh Deah*, cap. 81). It prohibits the use of milk of diseased animals. If milk has been used for making cheese and the animal subsequently killed and found diseased, the cheese was pronounced unfit for food, unless it was clear that the

animal was quite healthy at the time of milking and the disease more recent than that operation.

Neglecting for a moment the sentiments which may have actuated the Rabbis who discussed and stereotyped the numerous regulations regarding the animals intended for food, we have to inquire what it was that prompted the establishment of these laws, whether the conditions rendering the animal prohibited for food are really all indications of disease, and thirdly whether a strict adherence to the prescribed laws is an absolute safeguard to contracting disease from butcher's meat. According to the Mosaic law two classes of animals were prohibited for food; namely, animals which had died a natural death, or a violent death caused by some other animal. It is implied in the latter category that even if the injuries do not produce an immediately fatal effect the animal is nevertheless under the ban of טרפה (unclean). It therefore comes about that the Jewish law taboos the use of the meat of animals in imminent danger of death from injury. Now although it is nowhere stated clearly it was the tradition among the Israelites likewise to abstain from the meat of animals in imminent danger of death from disease. This is all the material we possess bearing on the origin of these laws, and knowing the spirit of those devoted men who transmitted the law—written and traditional—it is sufficient to account for the amount of legislation existing on the examination of the animals used for food. The criterion in these *post-mortem* examinations turned on the question whether any lesion present would have led naturally to the death of the animal examined; if so, it was unfit for food. We may reasonably assume a sanitary explanation for this provision. Modern sanitarians are, however, perplexed to account for the detailed minuteness of the examination insisted upon, and marvel at the abundant precision and care required in the process. To render this intelligible we must remember that this elaboration followed on an extreme zeal for observing

the law of the Bible and tradition rather than on the sense preserving public health, beyond the idea that every religious act reflected beneficially on material welfare.

Two main conditions render an animal unfit for food, namely, disease and the presence of parasites. In some cases of injury the meat may become so deteriorated as to be unfit for food. The laws of Bedikah will cover all cases of pleuro-pneumonia and advanced tuberculosis, and though these do not exhaust the causes of diseased meat, a system which renders the consumption of such meat impossible is of a distinct sanitary value. The same French physician, M. Noel Gueneau de Mussy, whose experiment on the subject of the leprosy of the house has been referred to, writes as follows: "The idea of parasitic and infectious maladies which has conquered so great a position in modern pathology appears greatly to have occupied the mind of Moses and to have dominated all his hygienic rules. He excludes from the Hebrew dietary, animals particularly liable to parasites, and as it is in the blood that the germs or spores of infectious disease circulate he orders that they must be drained of their blood before serving for food. The Talmud, a commentary on the Mosaic law, whose ordinances are regarded as of equal authority, goes much further and occupies itself not only with the species, but also with the state of health of the animals to be used for food; it prescribes an examination of the principal organs, especially the lungs, rejecting such as have adhesions either between the tissues of the lobes themselves, or between them and the ribs, and also if there be pustules disseminated even superficially in the lungs. The lung must be insufflated and its expansion so perfect that any rupture of its substance, however minute, suffices for its condemnation as impure, and to avoid all chance of error the insufflation must be conducted under water." Here then we have an easy and practical method within reach of unskilled persons of removing from food supplies the flesh of tuberculous animals, and for further

security the law in addition to, and even in the absence of such adhesions pronounces as impure and unfit for food animals whose lungs show pustules or excrescences disseminated on their surface. The word pustule corresponds in ordinary language to tubercle.

On the other hand the Jewish law prohibits the use of the meat of animals for certain conditions which do not affect the quality of the flesh. Any congenital malformation, or transposition of viscera, or other anatomical peculiarity in the essential organs which have no bearing on the health of the animal would necessitate its rejection.

II.

THROUGH our present extended conception of sanitary requirements, legislation has made almost every item of daily life subservient to the demands of hygiene. By the operations of the Public Health Acts provision is carefully made for the preservation of health by declaring certain things to be nuisances, and requiring their removal from positions where they are likely to prove injurious to health. It includes structural defects in houses and dwelling rooms, pools, ditches, gutters, water courses, drains, etc., whose accumulations are foul or otherwise detrimental to the health of the community. Of all the conditions relating to the surroundings of the individual which affect his health, the purity of the air claims the first place. The overcrowding of families, slovenliness in the removal of the refuse of dust-bins, putrefying and decomposing organic matter, all engender a habitually fœtid state of atmosphere which is now acknowledged to act most injuriously on the physical and mental organisation of those who are born and live in surroundings of that character. In the Bible air is frequently identified with the unknown principle of life, and is but rarely alluded to as a material for breathing purposes. The external atmosphere is mostly regarded in its relations as a highway for the birds, and is not at all viewed in its more

prosaic relation of filling up the cubic contents of dwelling rooms. Subsequently the air became a very important body ; it became one of the four elements out of which all matter was formed. The Talmudical authorities recognised the important influence the condition of the air might exert when they said that residence in the Holy Land was followed by an invigorating reaction on the intellectual faculties ; and numerous quotations might be adduced to show that the state of the air formed the burden of several of the sanitary dicta of the Rabbis. In one instance we find an inaptitude for application to study traced to the effects of the effluvia given off from decomposing organic matter. A remarkable fact is noticed quite worthy of our modern hygienic age, which shows how Jerusalem in the old days was not only a centre whence learning went forth, but also one from which antiseptic measures emanated. Cinnamon wood abounded around Jerusalem and this was used for purposes of fuel, the burning of which exercised a most salutary effect on the atmosphere of the surrounding districts. In the home precautions were likewise taken to render the air of the living rooms as healthy as possible. To this end the custom prevailed of fumigating the room daily after the midday meal by means of burning various perfumes. To-day the ventilation of factories, workshops, and bakehouses forms the subject of special concern to sanitary legislators, who very strenuously suggest and enforce new and improved measures for establishing industrial life on a more hygienic basis. But really these measures do not possess the charm of absolute novelty. Laws of very similar tendency regulated the working life of the Jews in their ancient home, and we can infer from the Talmudical discussions thereon how elaborate were the details of such sanitary precautions as the law insisted upon. From the plentiful data supplied in the Talmud and the occasional references in contemporary works we could paint a realistic picture showing the daily occupations of the Jews of that time which centre

about the חצר, "courtyard". The backbone of the people lived and worked in the collection of courtyards which together formed an ancient Jewish town. The conditions which obtained in the courtyard made such sanitary precautions as the Rabbis instituted imperative necessities. It was always a densely populated hive of industry, with shops, dwelling houses, stalls, schools, small factories reverberating with sounds indicative of every variety of industrial activity. There the clang of the hammer alternated with the noise of grinding millstones, and mingled with the cries of the petty salesmen and the continual tramp of people entering and leaving the courtyard; and above them all was heard the shrill prattle of the school children at their lessons. And emerging from the courtyards into the walled lanes into which they abut we are confronted with an extended view of the self-same evidences of the people's industry. "Scenes of confused buying and selling, and endless variety of action in sounds, colours, and things. The ground is paved with broad unshaped flags from which each cry and jar and hoof-stamp arises to swell the medley that rings and roars up between the solid impending walls." Here are congregated objective testimonies to inter-provincial trade, for in the dense crowd we distinguish dealers and pedlars from surrounding towns, and traders with the wares of distant provinces. Hastening away from the din and turmoil of the market we betake ourselves to the quieter recesses of the college, and listen to the council within discussing the best methods of introducing concord among the numerous litigants this traffic must create; and perhaps nowhere shall we find more interest evinced in the discussion than where it turned upon disputes arising out of alleged injury to personal health and comfort induced by some of the numerous callings engaged in; for the Rabbis carried out to the letter the Biblical traditions anent the sanctity of human life and all its concerns. In the civil portions of the Rabbinical law we are able to trace the system they pursued in this

important administrative duty, and in their Public Health Act the following are examples of what constituted nuisances. It was illegal to construct any watercourse for the purposes of drainage or washing clothes within a fixed distance of a party wall, and in every case an embankment was required to be erected to prevent the water which might be the receptacle of refuse from permeating into the neighbouring territory. Dust and rubbish, the waste of vegetables, and stones likely to accumulate rubbish, were not permitted to be shot at random against the property of the next-door neighbour. The fixing of a furnace anywhere at will was prohibited unless space could be ensured for the dissipation of the heat evolved in burning the fuel—an enactment principally directed against bakers. A baker could not obtain a licence to open a shop on the ground floor of premises where the upper storey was used for storing fruit, because the constant heat from below would render the fruit above unfit for consumption. The same restriction applied to workers in dyes, an industry the Jews inherited from their Phoenician allies. The use of any portion of such premises for stables was of course against the law. The inhabitants of the secluded courtyard, indulging in the repose of their dwellings, always had the right to object to a tradesman opening a shop in their vicinity on the plea of its disturbing their health.

Curiously enough a tree in the middle of a town was an eyesore and a nuisance to the ancient Jew; the box and the sycamore, despite that they are the constant source of free oxygen, merited their special disfavour. The local authorities had a perfect right to cut down such a tree without consulting the owner of the freehold, and all such large trees were relegated to a respectable distance outside the precincts of the town. There also was the place for barns of any size; inside the town the chaff was condemned as a public nuisance. No carcases of any kind were allowed to be kept within the walls, nor were tanyards tolerated unless they were fifty cubits

away from the town ; they might only be built on the eastern side because “the east wind is warm and diminishes any danger that may arise from the noxious odours arising out of that occupation”. Cemeteries inside the town were prohibited. It was the duty of the individual whose well-being was injured to take action against such encroachments, and if he neglected to do so within a reasonable time it was not possible to obtain redress except in the case of annoyance caused by smoke, bad smells or dust.

We find that the construction of the streets and dwelling houses came within the sphere of Rabbinical control. The injunction to provide a fence to the roof of one’s house is the Biblical text on which is based an extended amplification of it. The roofs of synagogues and schools, not being dwelling houses, were not required to be fenced in ; but pits or wells in the courtyards were compelled to be railed in or provided with suitable lids.

In view of the importance attached to the efficient construction and adequate ventilation of dwelling houses, it will be interesting here to notice some of the old Jewish regulations on the subject. The houses situated in the courtyards already referred to possessed no architectural pretensions. They were however reared of durable material, and the law stepped in to prevent any anticipation of jerry building. The structures consisted generally of one floor ; occasionally there was an upper storey, and the roof was often utilised for domestic purposes. Touching the rebuilding of one-storied dwellings the law says : “Should the landlord desire to effect any alteration in the walls, it may be only in the direction of strengthening and widening them. Brick walls may not replace stone walls, the ceilings may be provided with stronger and firmer beams, but those of weaker material are not admissible. The height of the house may not be raised ; nor may additional windows be placed in the ground floor apartments of a one-storied dwelling ; but the upper storey

itself may be rebuilt of a lighter material and with additional windows."

Notwithstanding these instructions the walls of these structures of primitive type sometimes sank into the soil on which they were built, and thus reduced the height of the room. If the walls sank to the extent of nine spans the house was condemned and the owner of the upper apartments might, if he refused to quit, be forcibly ejected. If a man of average stature could stand erect in a room with a bundle of medium size on his head, it was regarded as a reasonable height. Walls which were dilapidated or falling to pieces were compelled to be rebuilt. The accumulated débris of a fallen wall had to be cleared off the ground on which it fell.

The houses as we have said abutted on the courtyard, and this space was guarded by law from becoming a source of technical nuisances. The neighbours might not be annoyed by one of their number keeping therein cattle, or a millstone, or by using it to rear fowls or for anything of a nature not adapted for the place. No exception was taken to using it as a scullery, because the "daughters of Israel are not accustomed to degrade themselves by repairing to the river to wash clothes". The squares into which the courtyards open were governed by like regulations.

We find the same principles of law and order applied to communal life, many of which recall the duties of the modern district surveyor and sanitary inspector. The duty of the townsfolk to attend to those aspects of town-life which tell on their health is enforced. No wise man would dwell in a town which did not possess a medical officer, and every town was compelled to possess its own baths and some form of sewage provision. All were compelled to contribute to the expenses of the municipal arrangements on behalf of the welfare of the inhabitants. A temporary resident even was compelled to subscribe towards the digging of lime pits and

watercourses, and the tax to keep the streets and roads in repair fell even upon the "students of the law" who were exempt from most of these imposts. The water supply of the city was ever a matter of thought and care. We know from the writings of Josephus and recent excavations at Jerusalem and its environs how the metropolis was supplied with water. Tacitus mentions reservoirs in the Temple enclosure with pools and cisterns and one perennial spring. Josephus notices seven pools and springs. Conder says, "three aqueducts supplied Jerusalem with water. On the south the conduit constructed by Pontius Pilate brought water from the spring of Etana. Its total length is forty-one miles, though in a straight line the headspring is only thirteen miles from Jerusalem. The water was conducted to the Temple enclosure. Another aqueduct is traceable in the direction of Jerusalem which probably led to the cisterns under the tower of Hippicus. The northern aqueduct can be traced from the present Damascus gate to the Twin pools and thence southwards to the Temple well which has been built across it. A cistern exists inside the enclosure, opposite the end of the aqueduct and was probably supplied by it." When waterworks were being constructed even orphans were taxed to contribute towards the expenses; but if the undertaking failed, and a supply of water did not result, this tax was refunded to the orphans. Water then, as now, was a precious commodity in the East, and the waste water which ran down in pipes from the roofs was eagerly collected by the inhabitants for domestic purposes.

The Rabbis knew that the standard of public health was merely the combined expression of the mass of individual health, and as to-day the State steps in occasionally and concerns itself with the health of the individual for the sake of the health of the public, so the Jewish law repeatedly intruded upon the liberty of the subject for the avowed purpose of sanitary precautions. The neglect of these precautions was

attended by corporal punishment. The following extract shows their nature : " It is forbidden to drink out of a flowing water-course, to drink out of rivers or pools in the night for fear of swallowing a leech in the dark ; nor from water that has been exposed, lest a poisonous reptile have partaken of it ". Besides water it was forbidden to drink wine, strong or diluted or about to ferment, milk, honey and juice which had been exposed. But if the wine, milk or water had been boiled it might be drunk with impunity after exposure. If even nine people had drunk from contaminated sources without ill results, nevertheless the tenth should abstain because the poison may have sunk to the bottom. Water unfit for drinking must not be thrown into the public thoroughfare, it must not be used for cleaning the house, for slaking lime, nor for washing the hands and feet. It must not be given to cattle to drink, but it may be given to cats. Flour which had been kneaded with such water was obliged to be burnt. It is tempting to parade these precautions as anticipations of our present knowledge concerning the ill effects of a contaminated water supply, because it has been proved to the hilt that typhoid fever and cholera spread mainly by the contagion being transported through drinking water. But it would be at the cost of gross exaggeration. Enactments such as these are undoubtedly of a sanitary nature, but products of the experiences and necessities of their own times, not prophetic forebodings of the science of a distant future. And the circumstances of the water supply of the East even at the present day show the wisdom of these enactments, for disease often lurks in the streams, infested as they may be with leeches, eggs or embryos of the filariæ, ascarides, flukes, the various species of solecida, the guinea worm and the Bilharzia Hæmatoba.

When we read a stringent prohibition against putting money in one's mouth lest it had previously passed through the same organ of persons affected with sores or lepers, although we may acknowledge that the dictum reveals ideas upon infection

we are not called upon to invest it with the full meaning of modern pathological doctrines. We admire the evident care the Rabbis showed for hygiene, but we are constantly reminded that their pathology did not rise above the spirit of their age. The noteworthy precaution regarding coins, for instance, is accompanied by the statement that they might be contaminated by perspiration, and the perspiration of any part of the human body, except the face, is a deadly poison.

The foregoing details indicate that the care for human life found practical expression in a comprehensive sanitary code. No one holds a brief to demonstrate the scientific value of all the precautions enforced. We may content ourselves with the knowledge that the life of the Israelite, in its social and natural aspects, is regulated by laws which make for the preservation of health and immunity from disease. The prescriptions of Jewish hygiene resolve themselves into a force acting on the national health of the Jews. This force acting through long successive centuries has raised the standard of national health to a high degree. The statement that the Jewish national health is of a high standard is based on the results of statistics from various quarters of the globe. The inferences one might deduce from the statistics are very fallible, because it is impossible to say what proportion of the difference observed is due to differences in climate and food and what to racial peculiarities. "This difficulty can in part be avoided by examining the vital statistics of different races living under the same conditions as to climate, etc., and the data coming from certain portions of the United States, which is now the great mixing ground of races, are especially valuable in this respect. In 1890 the city of New York contained about 335,000 white persons whose mothers were born in America, and 25,000 coloured; 400,000 whose mothers were born in Germany, 400,000 whose mothers were born in Ireland, 120,000 Russian and Polish Jews, 55,000 Englishmen and 54,000 Italians. Taking the deaths among persons 15

years old and upwards for the six years ending 31st May, 1890, we find that the annual death rates per 100 of population in these different races are as follows : Irish, 28·0 ; Coloured, 23·6 ; English, 20·8 ; Germans, 17·0 ; Americans, 16 ; Italians, 12·3 ; Russian and Polish Jews, 6·2. The Jewish death rate is here conspicuously low, although in New York the Jewish population occupy some of the most crowded tenement-house districts. A considerable number of those reported as Germans were Jews with a low death rate, and if these could be separated the death rate of the Germans would probably be over 19 per 1000. These are general death rates only. The annual death rates for phthisis were for each 100,000 persons : 774 Coloured, 646 Irish, 329 Germans, 205 Americans, Russians and Polish Jews, 98. For pneumonia the death rates per 100,000 persons of all ages were : Italians, 456 ; Coloured, 390 ; Irish, 344 ; American whites, 273 ; English, 269 ; Germans, 214 : and Russian and Polish Jews, 170.

These figures were given by Dr. Billings, Surgeon-General of the United States Army, in a paper read last August before the University Extension classes, Oxford. He concluded that the Jews have a low death rate, and a more than average longevity ; they are less affected than other races by phthisis, pneumonia, and alcoholism, but are especially liable to diabetes, locomotor ataxy, and other diseases of the nervous system.

A recent report of the Medical Officer of Health for Manchester shows that the portions of the city where the poorer Jews congregate, *viz.*, Red Bank and Strangeways, are distinctly healthier than the rest of the city. In one quarter the death rate in Red Bank was 17·1 per 1000 and in Strangeways 18·5 per 1000, while in other districts it ranged from 25·1 to 40, so that the death rate of the Jewish quarters was very much less than that of other districts in that particular quarter of the year. This was not an isolated circumstance,

because in the districts of Red Bank and Strangeways the same state of affairs had existed for the last two or three years. The death rate for children's diseases for the year 1893 was lower in Red Bank and Strangeways than in other districts. From phthisis also the death rate was lower than in the whole city—almost as low as half what it was in the central portions of the city outside those districts.

Quite recently Dr. Anghel Gaster has undertaken a very exhaustive compilation of the statistics of consumption among the Jews in London, and he has very kindly permitted me to quote some of his hitherto unpublished results. The statistics are based only on the death returns. These have been derived from the United Synagogue Burial Reports for the five years 1889-93 inclusive, and the deaths have been classified according to their causes and the ages of the deceased. These have been compared with the returns of the Registrar-General for the same years. Dr. Gaster's figures show that among the general population of London 16 per cent. of all deaths are due to consumption, among the Jewish population only 7 per cent. of all deaths can be traced to consumption, this referring to males only; among the females the figures are $11\frac{1}{2}$ per cent. and 5 per cent. respectively. Proceeding to detail the deaths according to the varieties of consumption he arrived at the following figures:—

		Tubercular Lung.	Tubercular Bowels.	Tubercular Meningitis.
General Population (Males)	-	$12\frac{1}{2}$ per cent.	2 per cent.	2 per cent.
Jewish "	"	6 ,"	1 ,"	$\frac{1}{6}$,"
General "	(Females)	9 ,"	$1\frac{1}{2}$,"	$1\frac{1}{4}$,"
Jewish "	"	3 ,"	1 ,"	$\frac{1}{2}$,"

It is freely stated that Jews manifest great immunity from lung disease, but are especially prone to nervous complaints. The ready explanation forthcoming asserts that this arises from the scrupulous care exercised to prevent infection by meat, and the high tension of brain at which the Jews live. On the question of consumption among Jews and its relation

to the meat supply the most rational position to assume is one of moderate scepticism. Only an infinitesimal proportion of cases of consumption can with any probability be attributed to infection from meat, and the striking immunity enjoyed by Jews cannot arise from this circumstance. The germs of consumption are ever with us. They exist in the air we breathe, in the dust on our walls and floors of dwelling rooms in an infinitely greater proportion than they do in diseased meat. So rife is this disease that probably no living being fails to be frequently exposed to the infection. There is some constitutional predisposition necessary before the disease can take root in the system. We know the actual cause of the disease, but are ignorant of the constitutional predisposition without which this cause can produce no effect. It is reasonable to suppose that the excellent vitality and national health of the Jews is associated with a constitution on which the tubercular poison cannot easily flourish. In other words, Jews suffer the same exposure to infection, but more rarely contract the disease because they are the better fitted to resist it. They are the better fitted to resist it because for ages their ancestors have been living lives regulated by such sanitary precautions as we have considered. But this power of resistance, unless fostered and well nourished, rapidly dies out. The enforced overcrowding which exists among many Jewish communities works havoc with the hereditary resisting powers of the Jews, which may soon become neutralised by acquired disadvantages. The statistics on which their splendid bill of health is based relate mainly to the poor; they have supplied the community generally with the creditable sanitary reputation it possesses. Statistical evidence is notoriously uncertain, and we should do well to discount many of the figures which tell of surprising differences in the proportional mortality of the Jewish and other races. We must consider also that the lower death rate of the Jews may depend to a large extent on social, not

purely sanitary, causes. Their greater sobriety, the greater care Jewish mothers bestow on their children, and the fact that Jews are but little exposed to the wholesale accidents which go so largely to swell the mortality tables, are concerned in diminishing the death rate. The superiority of their vital statistics may in some small degree account for the remarkable preservation of the race; but their continued existence is not due to the results of physical heredity alone. Generations of vigorous individuals and healthy offspring would not have secured the separate preservation of the Jewish people to this day, unless the moral and religious stamina had descended from parent to child with the physical forces of heredity.

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